LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

Tait Environmental Management, Inc.
701 N. Park Center Drive
Santa Ana, CA 92705
ATTN: Mr. Matt Hillman

October 31, 2005

SUBJECT: Boeing Realty Corp., Bldg. C-6 Facility, Data Validation

Dear Mr. Hillman,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on October 20, 2005. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 14166:

SDG #	Fraction
E5I200157, E5I210421, E5I220419	Volatiles

The data validation was performed under Tier 1, Tier 2 and Tier 3 guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998

Please feel free to contact us if you have any questions.

Sincerely,

Stella S. Cuenco
Project Manager/Senior Chemist

14166COV.wpd

Attachment 1

LDC #14166 (Tait Environmenal Management, Inc. / Boeing Realty Corp., Former C-6 Facility, Torrance, CA)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)																													
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	E5I200157	10/20/05	11/10/05	1	0	Ter I																											
B	E5I210421	10/20/05	11/10/05	1	0																												
C	E5I220419	10/20/05	11/10/05	1	0																												
Total	B/SC			3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3

Shaded cells indicate Tier III validation (all other cells are Tier II validation). Sample counts do not include MS, MSD, or DUP's.

4166ST.wpd

Boeing Realty Corp., Former C-6 Facility, Torrance, CA
Data Validation Reports
LDC# 14166

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Realty Corp, Former C-6 Facility, Torrance CA

Collection Date: September 19, 2005

LDC Report Date: October 28, 2005

Matrix: Water

Parameters: Volatiles

Validation Level: Tier 1

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E5I200157

Sample Identification

TMW_14_WG091905_0001

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level II.

III. Initial Calibration

Initial calibration data were not reviewed for Level II.

IV. Continuing Calibration

Continuing calibration data were not reviewed for Level II.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

Internal standards data were not reviewed for Level II.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Boeing Realty Corp, Former C-6 Facility, Torrance CA
Volatiles - Data Qualification Summary - SDG E5I200157

No Sample Data Qualified in this SDG

Boeing Realty Corp, Former C-6 Facility, Torrance CA
Volatiles - Laboratory Blank Data Qualification Summary - SDG E5I200157

No Sample Data Qualified in this SDG

Tait Environmental

Client Sample ID: TMW_14_WG091905_0001

GC/MS Volatiles

Lot-Sample #...: E5I200157-006 **Work Order #...:** HKXXL1AA **Matrix.....:** W
Date Sampled...: 09/19/05 13:30 **Date Received..:** 09/19/05 17:00
Prep Date.....: 09/22/05 **Analysis Date..:** 09/22/05
Prep Batch #...: 5265650 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Methyl tert-butyl ether	ND	1.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Acetone	ND	10	ug/L
trans-1,2-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
cis-1,2-Dichloroethene	**0.39 J**	**1.0**	**ug/L**
Chloroform	**1.6**	**1.0**	**ug/L**
Bromochloromethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
2-Butanone	ND	5.0	ug/L
1,1-Dichloropropene	ND	1.0	ug/L
Carbon tetrachloride	**1.5**	**0.50**	**ug/L**
1,2-Dibromoethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
Trichloroethene	**7.3**	**1.0**	**ug/L**
Bromodichloromethane	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Toluene	**0.49 J**	**1.0**	**ug/L**
1,1,2-Trichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	0.50	ug/L
Tetrachloroethene	**1.7**	**1.0**	**ug/L**
2-Hexanone	ND	5.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Vinyl chloride	ND	0.50	ug/L
Xylenes (total)	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L

(Continued on next page)

10/28/05

Tait Environmental

Client Sample ID: TMW_14_WG091905_0001

GC/MS Volatiles

Lot-Sample #...: E5I200157-006 **Work Order #...:** HKXXL1AA **Matrix.....:** W

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
n-Propylbenzene	ND	1.0	ug/L
Bromobenzene	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
tert-Butylbenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
sec-Butylbenzene	ND	1.0	ug/L
p-Isopropyltoluene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
n-Butylbenzene	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane	ND	2.0	ug/L
1,2,4-Trichlorobenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	1.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Iodomethane	ND	2.0	ug/L
2-Chloroethyl vinyl ether	ND	5.0	ug/L
Tetrahydrofuran	ND	10	ug/L
Vinyl acetate	ND	5.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	91	(75 - 130)
1,2-Dichloroethane-d4	95	(65 - 135)
Toluene-d8	95	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

NL 102805

LDC #: 14166A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/26/05
SDG #: E5I200157 Tier 1 Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: JV
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times /coc	✓	Sampling dates: 9/19/05
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration	N	
V.	Blanks	✓	
VI.	Surrogate spikes	✓	
VII.	Matrix spike/Matrix spike duplicates	✓	
VIII.	Laboratory control samples	✓	
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A ✓	
XVI.	Field duplicates	N	
XVII.	Field blanks	NA	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Water

1	TMW_14_WG091905_0001	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Realty Corp, Former C-6 Facility, Torrance CA

Collection Date: September 21, 2005

LDC Report Date: October 28, 2005

Matrix: Water

Parameters: Volatiles

Validation Level: Tier 2

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E5I210421

Sample Identification

MWB020_WG092105_0001

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
9/21/05	Tetrahydrofuran	36.5	All samples in SDG E5I210421	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/21/05	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	0.02111 (≥0.05) 0.02250 (≥0.05) 0.03397 (≥0.05) 0.04393 (≥0.05) 0.03144 (≥0.05) 0.03826 (≥0.05)	All samples in SDG E5I210421	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/21/05	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	0.02231 (≥0.05) 0.02455 (≥0.05) 0.03611 (≥0.05) 0.04426 (≥0.05) 0.02556 (≥0.05) 0.03180 (≥0.05)	All samples in SDG E5I210421	J (all detects) UJ (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS5266561	Bromomethane	157 (60-140)	All samples in SDG E5I210421	J (all detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Boeing Realty Corp, Former C-6 Facility, Torrance CA
Volatiles - Data Qualification Summary - SDG E5I210421

SDG	Sample	Compound	Flag	A or P	Reason
E5I210421	MWB020_WG092105_0001	Tetrahydrofuran	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
E5I210421	MWB020_WG092105_0001	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
E5I210421	MWB020_WG092105_0001	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
E5I210421	MWB020_WG092105_0001	Bromomethane	J (all detects)	P	Laboratory control samples (%R)

Boeing Realty Corp, Former C-6 Facility, Torrance CA
Volatiles - Laboratory Blank Data Qualification Summary - SDG E5I210421

No Sample Data Qualified in this SDG

Tait Environmental

Client Sample ID: MWB020_WG092105_0001

GC/MS Volatiles

Lot-Sample #...: E5I210421-010 **Work Order #...:** HK4KG1AA **Matrix.....:** W
Date Sampled...: 09/21/05 12:55 **Date Received..:** 09/21/05 17:10
Prep Date.....: 09/23/05 **Analysis Date..:** 09/23/05
Prep Batch #...: 5266561 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	1.6	ug/L
Chloromethane	ND	3.1	ug/L
Chloroethane	ND	3.1	ug/L
Bromomethane	ND	3.1	ug/L
Trichlorofluoromethane	ND	3.1	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	1.6	ug/L
1,1-Dichloroethene	ND	1.6	ug/L
Methylene chloride	**0.70 J**	**1.6**	**ug/L**
Methyl tert-butyl ether	ND	1.6	ug/L
Carbon disulfide	ND	1.6	ug/L
Acetone	ND UJ	16	ug/L
trans-1,2-Dichloroethene	**3.7**	**1.6**	**ug/L**
1,1-Dichloroethane	**3.6**	**1.6**	**ug/L**
2,2-Dichloropropane	ND	1.6	ug/L
cis-1,2-Dichloroethene	**110**	**1.6**	**ug/L**
Chloroform	**0.85 J**	**1.6**	**ug/L**
Bromochloromethane	ND	1.6	ug/L
1,1,1-Trichloroethane	ND	1.6	ug/L
2-Butanone	ND UJ	7.8	ug/L
1,1-Dichloropropene	ND	1.6	ug/L
Carbon tetrachloride	ND	0.78	ug/L
1,2-Dibromoethane	ND	1.6	ug/L
Benzene	ND	1.6	ug/L
Trichloroethene	**26**	**1.6**	**ug/L**
Bromodichloromethane	ND	1.6	ug/L
4-Methyl-2-pentanone	ND	7.8	ug/L
Toluene	ND	1.6	ug/L
1,1,2-Trichloroethane	ND	1.6	ug/L
1,2-Dichloroethane	ND	0.78	ug/L
Tetrachloroethene	ND	1.6	ug/L
2-Hexanone	ND	7.8	ug/L
Dibromochloromethane	ND	1.6	ug/L
Chlorobenzene	ND	1.6	ug/L
1,1,1,2-Tetrachloroethane	ND	1.6	ug/L
Ethylbenzene	ND	1.6	ug/L
Vinyl chloride	ND	0.78	ug/L
Xylenes (total)	ND	1.6	ug/L
Styrene	ND	1.6	ug/L
Bromoform	ND	1.6	ug/L

(Continued on next page)

9 10/28/05

Tait Environmental

Client Sample ID: MWD020_WG092105_0001

GC/MS Volatiles

Lot-Sample #...: E5I210421-010 **Work Order #...:** HK4KG1AA **Matrix.....:** W

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	1.6	ug/L
1,1,2,2-Tetrachloroethane	ND	1.6	ug/L
1,2,3-Trichloropropane	ND	1.6	ug/L
n-Propylbenzene	ND	1.6	ug/L
Bromobenzene	ND	1.6	ug/L
1,3,5-Trimethylbenzene	ND	1.6	ug/L
2-Chlorotoluene	ND	1.6	ug/L
4-Chlorotoluene	ND	1.6	ug/L
tert-Butylbenzene	ND	1.6	ug/L
1,2,4-Trimethylbenzene	ND	1.6	ug/L
sec-Butylbenzene	ND	1.6	ug/L
p-Isopropyltoluene	ND	1.6	ug/L
1,3-Dichlorobenzene	ND	1.6	ug/L
1,4-Dichlorobenzene	ND	1.6	ug/L
n-Butylbenzene	ND	1.6	ug/L
1,2-Dichlorobenzene	ND	1.6	ug/L
1,2-Dibromo-3-chloro-propane	ND	3.1	ug/L
1,2,4-Trichloro-benzene	ND	1.6	ug/L
Hexachlorobutadiene	ND	1.6	ug/L
1,2,3-Trichlorobenzene	ND	1.6	ug/L
Acrolein	ND UJ	31	ug/L
Acrylonitrile	ND ↓	31	ug/L
Iodomethane	ND	3.1	ug/L
2-Chloroethyl vinyl ether	ND UJ	7.8	ug/L
Tetrahydrofuran	ND ↓	16	ug/L
Vinyl acetate	ND	7.8	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	87	(75 - 130)
1,2-Dichloroethane-d4	97	(65 - 135)
Toluene-d8	95	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

10/28/05

LDC #: 14166B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/26/05
SDG #: E5I210421 Tier 2 Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: JV
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/21/05
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	~~N~~ A	None/P non-client
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	~~TB~~ = ~~TB_TAIT092105_0001~~

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Water

+ 1	MWB020_WG092105_0001	11		21		31	
- 2	MB 526656	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

IETHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	S. Trichloroethene	KK. Trichlorofluoromethane	CCC. tert-Butylbenzene	UUU. 1,2-Dichlorotetrafluoroethane
B. Bromomethane	T. Dibromochloromethane	LL. Methyl-tert-butyl ether	DDD. 1,2,4-Trimethylbenzene	VVV. 4-Ethyltoluene
C. Vinyl choride**	U. 1,1,2-Trichloroethane	MM. 1,2-Dibromo-3-chloropropane	EEE. sec-Butylbenzene	WWW. Ethanol
D. Chloroethane	V. Benzene	NN. Methyl ethyl ketone	FFF. 1,3-Dichlorobenzene	XXX. Di-Isopropyl ether
E. Methylene chloride	W. trans-1,3-Dichloropropene	OO. 2,2-Dichloropropane	GGG. p-Isopropyltoluene	YYY. tert-Butanol
F. Acetone	X. Bromoform*	PP. Bromochloromethane	HHH. 1,4-Dichlorobenzene	ZZZ. tert-Butyl alcohol
G. Carbon disulfide	Y. 4-Methyl-2-pentanone	QQ. 1,1-Dichloropropene	III. n-Butylbenzene	AAAA. Ethyl tert-butyl ether
H. 1,1-Dichloroethene**	Z. 2-Hexanone	RR. Dibromomethane	JJJ. 1,2-Dichlorobenzene	BBBB. tert-Amyl methyl ether
I. 1,1-Dichloroethane*	AA. Tetrachloroethene	SS. 1,3-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	CCCC.1-Chlorohexane
J. 1,2-Dichloroethene, total	BB. 1,1,2,2-Tetrachloroethane*	TT. 1,2-Dibromoethane	LLL. Hexachlorobutadiene	DDDD. Isopropyl alcohol
K. Chloroform**	CC. Toluene**	UU. 1,1,1,2-Tetrachloroethane	MMM. Naphthalene	EEEE. Acetonitrile
L. 1,2-Dichloroethane	DD. Chlorobenzene*	VV. Isopropylbenzene	NNN. 1,2,3-Trichlorobenzene	FFFF. Acrolein
M. 2-Butanone	EE. Ethylbenzene**	WW. Bromobenzene	OOO. 1,3,5-Trichlorobenzene	GGGG. Acrylonitrile
N. 1,1,1-Trichloroethane	FF. Styrene	XX. 1,2,3-Trichloropropane	PPP. trans-1,2-Dichloroethene	HHHH. 1,4-Dioxane
O. Carbon tetrachloride	GG. Xylenes, total	YY. n-Propylbenzene	QQQ. cis-1,2-Dichloroethene	IIII. Isobutyl alcohol
P. Bromodichloromethane	HH. Vinyl acetate	ZZ. 2-Chlorotoluene	RRR. m,p-Xylenes	JJJJ. Methacrylonitrile
Q. 1,2-Dichloropropane**	II. 2-Chloroethylvinyl ether	AAA. 1,3,5-Trimethylbenzene	SSS. o-Xylene	KKKK. Propionitrile
R. cis-1,3-Dichloropropene	JJ. Dichlorodifluoromethane	BBB. 4-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	LLLL. Tetrahydrofuran

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 14166B1
SDG #: E5I21042

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Reviewer: JVG
2nd Reviewer: AC

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
(Y) N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
Y (N) N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?_____
Y N (N/A) Did the initial calibration meet the acceptance criteria?
Y (N) N/A Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	9/21/05	ICAL	FFFF		0.02111	All + Blk	J/UJ/A
			F		0.02250		
			GGGG		0.03397		
			M		0.04393		
			LLLL	36.5	0.03144		
			II		0.03826		

LDC #: 14166B1
SDG #: ESI210421

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
(Y) N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
Y (N) N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	9/22/15	QS2766	FFFF		0.02213	All + Blks	J/UJ/A
			F		0.02455		
			GGGG		0.03611		
			M		0.04426		
			LLLL		0.02556		
			II		0.03180		

LDC #: 14166 B1
SDG #: E5I210421

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?
Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		LCS 5266561	B	157 (60-140)	( )	( )	All + Blk	J dets / P
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Realty Corp, Former C-6 Facility, Torrance CA

Collection Date: September 22, 2005

LDC Report Date: October 27, 2005

Matrix: Water

Parameters: Volatiles

Validation Level: Tier 3

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E5I220419

Sample Identification

TMW_07_WG092205_0001

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
9/16/05	2-Chloroethylvinyl ether	69.4	All samples in SDG E5I220419	J (all detects) UJ (all non-detects)	A

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/16/05	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	0.01843 (≥0.05) 0.02347 (≥0.05) 0.03443 (≥0.05) 0.03734 (≥0.05) 0.01672 (≥0.05) 0.00844 (≥0.05)	All samples in SDG E5I220419	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/27/05	2-Chloroethylvinyl ether Bromomethane Iodomethane	114 32.0 38.2	All samples in SDG E5I220419	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/27/05	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether 1,2-Dibromo-3-chloropropane	0.01729 (≥0.05) 0.02114 (≥0.05) 0.03157 (≥0.05) 0.03502 (≥0.05) 0.01390 (≥0.05) 0.01804 (≥0.05) 0.04416 (≥0.05)	All samples in SDG E5I220419	J (all detects) UJ (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS5271703	Bromomethane	143 (60-140)	All samples in SDG E5I220419	J (all detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

XVII. Field Blanks

No field blanks were identified in this SDG.

Boeing Realty Corp, Former C-6 Facility, Torrance CA
Volatiles - Data Qualification Summary - SDG E5I220419

SDG	Sample	Compound	Flag	A or P	Reason
E5I220419	TMW_07_WG092205_0001	2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
E5I220419	TMW_07_WG092205_0001	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
E5I220419	TMW_07_WG092205_0001	2-Chloroethylvinyl ether Bromomethane Iodomethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
E5I220419	TMW_07_WG092205_0001	Acrolein Acetone Acrylonitrile 2-Butanone Tetrahydrofuran 2-Chloroethylvinyl ether 1,2-Dibromo-3-chloropropane	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
E5I220419	TMW_07_WG092205_0001	Bromomethane	J (all detects)	P	Laboratory control samples (%R)

Boeing Realty Corp, Former C-6 Facility, Torrance CA
Volatiles - Laboratory Blank Data Qualification Summary - SDG E5I220419

No Sample Data Qualified in this SDG

Tait Environmental

Client Sample ID: TMW_07_WG092205_0001

GC/MS Volatiles

Lot-Sample #...: E5I220419-006 Work Order #...: HK7QX1AA Matrix.....: WG
Date Sampled...: 09/22/05 10:55 Date Received..: 09/22/05 17:35
Prep Date.....: 09/27/05 Analysis Date..: 09/28/05
Prep Batch #...: 5271703 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Dichlorodifluoromethane	ND	20	ug/L
Chloromethane	ND	40	ug/L
Chloroethane	ND	40	ug/L
Bromomethane	ND UJ	40	ug/L
Trichlorofluoromethane	ND	40	ug/L
1,1,2-Trichlorotrifluoro-ethane	ND	20	ug/L
1,1-Dichloroethene	**35**	**20**	**ug/L**
Methylene chloride	ND	20	ug/L
Methyl tert-butyl ether	ND	20	ug/L
Carbon disulfide	ND	20	ug/L
Acetone	ND UJ	200	ug/L
trans-1,2-Dichloroethene	ND	20	ug/L
1,1-Dichloroethane	ND	20	ug/L
2,2-Dichloropropane	ND	20	ug/L
cis-1,2-Dichloroethene	ND	20	ug/L
Chloroform	ND	20	ug/L
Bromochloromethane	ND	20	ug/L
1,1,1-Trichloroethane	ND	20	ug/L
2-Butanone	ND UJ	100	ug/L
1,1-Dichloropropene	ND	20	ug/L
Carbon tetrachloride	ND	10	ug/L
1,2-Dibromoethane	ND	20	ug/L
Benzene	ND	20	ug/L
Trichloroethene	**2000**	**20**	**ug/L**
Bromodichloromethane	ND	20	ug/L
4-Methyl-2-pentanone	ND	100	ug/L
Toluene	ND	20	ug/L
1,1,2-Trichloroethane	**7.2 J**	**20**	**ug/L**
1,2-Dichloroethane	ND	10	ug/L
Tetrachloroethene	ND	20	ug/L
2-Hexanone	ND	100	ug/L
Dibromochloromethane	ND	20	ug/L
Chlorobenzene	ND	20	ug/L
1,1,1,2-Tetrachloroethane	ND	20	ug/L
Ethylbenzene	ND	20	ug/L
Vinyl chloride	ND	10	ug/L
Xylenes (total)	ND	20	ug/L
Styrene	ND	20	ug/L
Bromoform	ND	20	ug/L

(Continued on next page)

NL 102805

Tait Environmental

Client Sample ID: TMW_07_WG092205_0001

GC/MS Volatiles

Lot-Sample #...: E5I220419-006 **Work Order #...:** HK7QX1AA **Matrix.....:** WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Isopropylbenzene	ND	20	ug/L
1,1,2,2-Tetrachloroethane	ND	20	ug/L
1,2,3-Trichloropropane	ND	20	ug/L
n-Propylbenzene	ND	20	ug/L
Bromobenzene	ND	20	ug/L
1,3,5-Trimethylbenzene	ND	20	ug/L
2-Chlorotoluene	ND	20	ug/L
4-Chlorotoluene	ND	20	ug/L
tert-Butylbenzene	ND	20	ug/L
1,2,4-Trimethylbenzene	ND	20	ug/L
sec-Butylbenzene	ND	20	ug/L
p-Isopropyltoluene	ND	20	ug/L
1,3-Dichlorobenzene	ND	20	ug/L
1,4-Dichlorobenzene	ND	20	ug/L
n-Butylbenzene	ND	20	ug/L
1,2-Dichlorobenzene	ND	20	ug/L
1,2-Dibromo-3-chloro-propane	ND UJ	40	ug/L
1,2,4-Trichloro-benzene	ND	20	ug/L
Hexachlorobutadiene	ND	20	ug/L
1,2,3-Trichlorobenzene	ND	20	ug/L
Acrolein	ND UJ	400	ug/L
Acrylonitrile	ND ↓	400	ug/L
Iodomethane	ND UJ	40	ug/L
2-Chloroethyl vinyl ether	ND UJ	100	ug/L
Tetrahydrofuran	**840** J	**200**	**ug/L**
Vinyl acetate	ND	100	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	84	(75 - 130)
1,2-Dichloroethane-d4	94	(65 - 135)
Toluene-d8	106	(80 - 130)

NOTE(S):

J Estimated result. Result is less than RL.

10/28/05

LDC #: 14166C1 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/26/05

SDG #: E5I220419 Tier 3 Page: 1 of 1

Laboratory: Severn Trent Laboratories, Inc. Reviewer: JV

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/22/05
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	~~N~~ A	~~None for~~ (nondient sample)
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/CRQLs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Water

1	TMW_07_WG092205_0001	11		21		31	
2	MB 271703	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 14166 C1
SDG #: E5I220419

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: VM
2nd Reviewer: h

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) > 0.05?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 14166 C1
SDG #: ESI220419

VALIDATION FINDINGS CHECKLIST

Reviewer: JVC
2nd Reviewer: M

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	S. Trichloroethene	KK. Trichlorofluoromethane	CCC. tert-Butylbenzene	UUU. 1,2-Dichlorotetrafluoroethane
B. Bromomethane	T. Dibromochloromethane	LL. Methyl-tert-butyl ether	DDD. 1,2,4-Trimethylbenzene	VVV. 4-Ethyltoluene
C. Vinyl chloride**	U. 1,1,2-Trichloroethane	MM. 1,2-Dibromo-3-chloropropane	EEE. sec-Butylbenzene	WWW. Ethanol
D. Chloroethane	V. Benzene	NN. Methyl ethyl ketone	FFF. 1,3-Dichlorobenzene	XXX. Di-isopropyl ether
E. Methylene chloride	W. trans-1,3-Dichloropropene	OO. 2,2-Dichloropropane	GGG. p-Isopropyltoluene	YYY. tert-Butanol
F. Acetone	X. Bromoform*	PP. Bromochloromethane	HHH. 1,4-Dichlorobenzene	ZZZ. tert-Butyl alcohol
G. Carbon disulfide	Y. 4-Methyl-2-pentanone	QQ. 1,1-Dichloropropene	III. n-Butylbenzene	AAAA. Ethyl tert-butyl ether
H. 1,1-Dichloroethene**	Z. 2-Hexanone	RR. Dibromomethane	JJJ. 1,2-Dichlorobenzene	BBBB. tert-Amyl methyl ether
I. 1,1-Dichloroethane*	AA. Tetrachloroethene	SS. 1,3-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	CCCC.1-Chlorohexane
J. 1,2-Dichloroethene, total	BB. 1,1,2,2-Tetrachloroethane*	TT. 1,2-Dibromoethane	LLL. Hexachlorobutadiene	DDDD. Isopropyl alcohol
K. Chloroform**	CC. Toluene**	UU. 1,1,1,2-Tetrachloroethane	MMM. Naphthalene	EEEE. Acetonitrile
L. 1,2-Dichloroethane	DD. Chlorobenzene*	VV. Isopropylbenzene	NNN. 1,2,3-Trichlorobenzene	FFFF. Acrolein
M. 2-Butanone	EE. Ethylberzene**	WW. Bromobenzene	OOO. 1,3,5-Trichlorobenzene	GGGG. Acrylonitrile
N. 1,1,1-Trichloroethane	FF. Styrene	XX. 1,2,3-Trichloropropane	PPP. trans-1,2-Dichloroethene	HHHH. 1,4-Dioxane
O. Carbon tetrachloride	GG. Xylenes, total	YY. n-Propylbenzene	QQQ. cis-1,2-Dichloroethene	IIII. Isobutyl alcohol
P. Bromodichloromethane	HH. Vinyl acetate	ZZ. 2-Chlorotoluene	RRR. m,p-Xylenes	JJJJ. Methacrylonitrile
Q. 1,2-Dichloropropane**	II. 2-Chloroethylvinyl ether	AAA. 1,3,5-Trimethylbenzene	SSS. o-Xylene	KKKK. Propionitrile
R. cis-1,3-Dichloropropene	JJ. Dichlorodifluoromethane	BBB. 4-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	LLLL. Tetrahydrofuran

MMMM Iodomethane

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 14166 E1
SDG #: E5I220419

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: JW
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
(Y) N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
Y (N) N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?_____
Y N N/A Did the initial calibration meet the acceptance criteria?
Y (N) N/A Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	9/16/05	ICAL	FFFF		0.01843	All + Blk	J/UJ/A
			F		0.02374	↓	↓
			GGGG		0.03443		
			M		0.03734		
			LLLL		0.01672		
			II	69.4	0.00844		
			[illegible]				

INICAL 1SB

BOE-C6-0053399

LDC #: 14166C1
SDG #: E5I220419

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: DVL
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
Y N N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	9/27/05	RS1586	FFFF		0.01729	All + Blk	J/UJ/A
			E		0.02114		
			GGGG		0.03157		
			M		0.03502		
			LLLL		0.01390		
			II	14	0.01804		
			MM		0.04416		
			B	32.0			
			MMMM	38.2			

LDC #: 14166C1
SDG #: E51220419

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A — Was a LCS required?
Y (N) N/A — Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		LCS 5271703	B	143 (60-140)	( )	( )	All + Blk	J dets /P
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 14166C1
SDG #: E5I220419

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: VV
2nd Reviewer: M

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	9/16/16	Methylene chloride (1st internal standard)	0.23291	0.2391	0.23382	0.23382	2.341	2.341
			Trichlorethene (2nd internal standard) CC	5.49274	5.49274	5.30841	5.30841	4.294	4.294
			Toluene (3rd internal standard) BB	0.37274	0.37274	0.~~38639~~	0.38639	7.137	7.137
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14166 C1
SDG #: E5I220919

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: SVL
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	RS1586	9/27/05	Methylene chloride (1st internal standard)	0.23382	0.22348	0.22348	4.33504	4.33570
			Trichlorethene (CC) (2nd internal standard)	5.3084	5.20858	5.20858	1.88057	1.88064
			Toluene (BB) (3rd internal standard)	0.38639	0.32846	0.32846	14.99122	14.9919
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14166C1
SDG #: E5I220419

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	10	10.58	106	106	0
Bromofluorobenzene	↓	8.39	84	84	↓
1,2-Dichloroethane-d4	↓	9.44	94	94	↓
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: 14166C1
SDG #: E51220419

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: NC
2nd Reviewer: K

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

Where: SSC = Spiked sample concentration
SA = Spike added

RPD = | LCS - LCSD | * 2/(LCS + LCSD)

LCS = Laboraotry control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: LCS 71703

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	NA	11.5	NA	115	115				
Trichloroethene			11.8		118	118				
Benzene			10.5		105	105				
Toluene			10.6		106	106				
Chlorobenzene			11.4		114	114				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14166C1
SDG #: E51220419

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: SVR
2nd reviewer: DC

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. #1 , S :

Conc. = (744659)(10)(20) / (294785)(0.2525)( )( )

= ~~160.79~~ 2002.86

≈ 2000 ng/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

RECALC 1SB